Princess May Primary School

Maths Curriculum Knowledge and Skills Progression Map 2026–27

A Cumulative Curriculum

At Princess May, we follow the MyMastery Maths curriculum. Our Maths curriculum is cumulative – each school year begins with focus on the concepts and skills that have the most connections, and this concept is then applied and connected throughout the school year to consolidate learning. These skills are developed by applying the 3 Dimensions of Depth to teaching and learning:

✓ **Conceptual understanding**
✓ **Language and communication**
✓ **Mathematical skill**

These underpin our approach because together they enable children to develop a deep understanding in mathematics. If a pupil has a meaningful understanding of the maths they are learning, they will be able to represent it in different ways, use mathematical language to communicate related ideas and think mathematically with the concept. This will enable them to apply their understanding to a new problem in an unfamiliar situation.

Our Curriculum Intent

At Princess May, we aim for all our pupils to develop our school values of respect, empathy and determination. A high quality Maths curriculum enables children to develop these values alongside gaining skills and knowledge in this subject area. We have adopted a mastery approach to Mathematics in order to deliver the three aims of the National Curriculum, fluency, reasoning and problem solving. Underpinning this pedagogy is a belief that all children can achieve in Maths. We believe in promoting sustained and deepening understanding by employing a variety of mastery strategies, with teaching for conceptual understanding at the heart of everything we do. Our approach aims to provide all children with full access to the curriculum, enabling them to develop independence, confidence and competence – 'mastery' in mathematics in order to be independent mathematicians who are well equipped to apply their learning to the wider world.

Our six-part lesson structure

Do Now

- A quick 5 minute task that all pupils can access without any teacher input as an introduction to the mathematics lesson.

New Learning

- Introduces the lesson's main mathematical concept.

Talk Task or Let's Explore

Develop Learning

Builds on the New Learning and develops a deeper understanding of the maths concepts of that lesson. It also addresses misconceptions or inaccuracies discovered during the preceding segment.

Independent Task

Provides pupils with the opportunity to practise the learning from that lesson. This may be independently, in pairs and/ or small groups.

• A chance for all pupils to practise using mathematical vocabulary related to the lesson's concept.	**Plenary** Recaps on the lesson, checking understanding and celebrating success.

National Curriculum Programme of Study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. At Princess May, the National Curriculum underpins our curriculum.

Sequence of Learning Overview

In each key stage, children are expected to:

EYFS

ELG: Number

Children at the expected level of development will:
• Have a deep understanding of numbers to 10, including the composition of each number.
• Subitise (recognise quantities without counting) up to 5.
• Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns

Children at the expected level of development will:
• Verbally count beyond 20, recognising the pattern of the counting system.
• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

KS1:

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower KS2:
The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper KS2:
The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Progression of knowledge

Number

	Place Value	Addition and Subtraction	Multiplication and Division	Fractions
EYFS	Develop an understanding of zero Develop number sense (one-one correspondence, cardinality, ordinality and conservation of number, subitising and abstraction) Identify and represent numbers : 0-10 (progressing to 20) Count on and back reliably: 0-50 Say which number is one more or one less than a given number	Automatically recall number bonds for numbers 0–5 (progressing to some numbers bonds within 10) Adding two single digit numbers within 10 by counting all or counting on. Subtracting two single digit numbers within 10 by taking away and through partitioning Explore additive problems in context using 'first, then now' structure.	Exploration of counting in equal groups Understand halving as splitting into two equal groups Recall some double facts within 10	Exploration of counting in equal groups Understand halving as splitting into two equal groups

Year 1	Read and write numbers in numerals: 0-100 and words: 0-20 Identify and represent numbers: 0-20 (progressing to 100) Count to and across, forwards and backwards in ones, count in twos, fives, and ten: 0-100 Identifying one more one less: 0-100	Represent and use number bonds and related subtraction facts within 20 Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs Add and subtract one-digit and two-digit numbers to 20, including zero, using a range of strategies including: count all, count on, count back, make ten, partitioning and use of known facts. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems	Develop understanding of multiplication as replication of equal groups and of doubling and halving numbers and quantities Count in multiples of 2s, 5s and 10s Grouping and sharing small quantities Solve one-step problems involving multiplication and division using concrete objects, pictorial representations	Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity
Year 2	Read and write in numerals and words; recognise the place value of each digit: 0-100 (0-1000) Identify, represent and estimate numbers : 0-100 (progressing to 1000) Count in twos, threes, fives and tens; forward and backward: 0-100 Compare and order number; use and = signs: 0-100 (0-1000) Use place value and number facts to solve problems	Recall and use number bonds within 20 fluently, and derive and use related facts up to 100 Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and 1s, a two-digit number and 10s, 2 two-digit numbers, adding 3 one-digit numbers. Solve problems with addition and subtraction including numbers, quantities and measures	Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division and write them using the ×, ÷ and = signs Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Recognise, find, name and write fractions, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ of a length, shape, set of objects or quantity Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{1}{2}$ and $\frac{2}{4}$.
Year 3	Read and write in numerals and words; recognise the place value of each digit: 0-1000 (10,000) Identify, represent and estimate numbers using different representations: 0-1000 (progressing to 10,000) Count from 0 in multiples of 4, 8 50 and 100; find 10 or 100 (1000) more or less than a given number Compare and order numbers: 0-1000 (10,000) Round numbers to the nearest 10 and 100 (1000) Solve number problems and practical problems involving these ideas	Estimate the answer to a calculation and use inverse operations to check answers Add and subtract mentally including adding 1s, 10s and 100s to a three-digit number Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Count from 0 in multiples of 4, 8, 50 and 100 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Multiply and divide two-digit numbers by one-digit numbers, using mental and progressing to formal written methods Solve problems, including missing number problems, involving multiplication and division	Develop an understanding of tenths; count up and down in tenths Recognise, use as numbers, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Compare and order unit fractions, and fractions with the same denominators Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole Solve problems that involve all of the above
Year 4	Recognise the place value of each digit: 0-10,000 Identify, represent and estimate numbers using different representations: 0-10,000 Read Roman numerals: 0-100	Estimate and use inverse operations to check answers to a calculation Apply mental strategies including using known facts to numbers within 10000.	Count in multiples of 6, 7, 9, 25 and 1000 Recall multiplication and division facts for multiplication tables up to 12 × 12 Use place value, known and derived facts	Round decimals with 1 decimal place to the nearest whole number Develop understanding of

	Count in multiples of 6, 7, 9, 25 and 1000; find 1000 more or less than a given number Count backwards through zero: negative numbers Compare and order numbers: beyond 1000 Round any number to the nearest 10, 100 or 1000 Solve number and practical problems involving these ideas, with increasingly large positive numbers	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations Multiply two-digit and three-digit numbers by a one-digit number using formal written layout Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems	hundredths Compare numbers with the same number of decimal places up to 2 decimal places Recognise and show, using diagrams, families of common equivalent fractions Recognise and write decimal equivalents of any number of tenths or hundreds, $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ Solve problems involving increasingly harder fractions to calculate quantities Add and subtract fractions with the same denominator Divide a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Solve simple measure and money problems involving fractions and decimals to 2 decimal places
Year 5	Read, write, order and compare numbers; recognise the place the value of each digit: 0-1,000,000 and beyond Read Roman numerals: 0-1,000 Count forwards or backwards in steps of powers of 10: 0-1,000,000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero (calculate intervals across zero) Round any number to the nearest 10, 100, 1,000, 10,000 and 100,000: 0-1,000,000 Solve number problems and practical problems that involve all of the above	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Add and subtract numbers mentally with increasingly large numbers Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers; establish whether a number up to 100 is prime and recall prime numbers up to 19 Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers Multiply and divide numbers mentally, drawing upon known facts Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context Multiply and divide whole numbers and decimals by 10, 100 and 1,000	Recognise mixed numbers and improper fractions and convert from one form to the other Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Round decimals with 2 decimal places Read, write, order, compare and solve problems numbers with up to 3 decimal places Develop understanding of percentages (%) as a ‘number of parts per 100’ Compare and order fractions whose denominators are all multiples of the same number Read and write decimal numbers as fractions Identify, name and write equivalent fractions of a given fraction, including tenths and

			Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes Solve problems involving four operations and problems that involve scaling by simple fractions or involving simple rates	hundredths Add and subtract fractions with the same denominator, and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Solve problems which require knowing percentage and decimal equivalents of common fractions
Year 6	Read, write, order and compare numbers; recognise the place value of each digit: 0-10,000,000 Use negative numbers in context, and calculate intervals across zero Round any whole number to a required degree of accuracy Solve number and practical problems that involve all of the above	Use their knowledge of the order of operations to carry out calculations involving the 4 operations Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Perform mental calculations, including with mixed operations and large numbers Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving all four operations	Identify common factors, common multiples and prime numbers Use their knowledge of the order of operations to carry out calculations involving the 4 operations Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit number using the formal written methods of short division or long division as appropriate, interpreting remainders according to the context Perform mental calculations, including with mixed operations and large numbers Solve problems involving four operations	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Identify the value of each digit in numbers given to 3 decimal places Compare and order fractions, including fractions >1 Recall and use equivalences between simple fractions, decimals and percentages Add and subtract fractions with different denominators and mixed numbers Multiply simple pairs of proper fractions Divide proper fractions by whole numbers Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction Multiply/divide numbers by powers of 10 giving answers up to 3 decimal places Multiply one-digit numbers with up to 2 decimal places by whole numbers Use written division methods in cases where the answer has up to 2 decimal places Solve problems which require answers to be rounded to specified degrees of accuracy

Progression of skills

Measurement

	Length/height, mass/weight, capacity/volume	Time	Money
Reception	Use everyday language to compare length, mass/weight and capacity	Spring 1 Days of the week, seasons Sequence daily events	<u>Summer 1</u> Coin recognition and values Combinations to total 20p Change from 10p
Year 1	Compare, describe, measure, record and solve practical problems for: lengths and heights; mass/weight; capacity and volume	Compare, describe, measure, record and solve practical problems for: time Sequence events in chronological order using language Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	Recognise and know the value of different denominations of coins and notes
Year 2	Choose and use appropriate standard units to estimate and measure length/height; mass; temperature; capacity Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Compare and sequence intervals of time • Tell and write the time to five minutes Know the number of minutes in an hour and the number of hours in a day	Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
Year 3	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure the perimeter of simple 2-D shapes	Tell and write the time from an analogue clock, including using Roman numerals and 12/24hr clocks Know the number of seconds in a minute and the number of days in each month, year and leap year Compare durations of events Estimate and read time with increasing accuracy to the nearest minute;	Add and subtract amounts of money to give change
Year 4	Measure and calculate the perimeter of a rectilinear figure in cm/m (including squares) Find the area of rectilinear shapes by counting squares Estimate, compare and calculate different measures, including money in pounds and pence	Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days Convert between different units of measure Read, write and convert time between analogue and digital 12- and 24-hour clocks	Estimate, compare and calculate different measures, including money in pounds and pence
Year 5	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres Calculate and compare the area of rectangles (including squares), including using standard units, cm^2 and m^2, and estimate the area of irregular shapes Estimate volume and capacity Use all four operations to solve problems involving measure Convert between different units of metric measure Understand and use approximate equivalences between metric units and common imperial units	Solve problems involving converting between units of time	Use all four operations to solve problems involving measure
Year 6	Solve problems involving the calculation and conversion of units of measure (up to 3dp) Recognise that shapes with the same areas can have different perimeters and vice versa Recognise when it is possible to use formulae for area and volume of shapes Calculate the area of parallelograms and triangles Calculate, estimate and compare volume of cubes and cuboids using standard units (cm^3 m^3), and extending to other units (e.g. mm^3 km^3) Use, read, write and convert between standard units (up to 3dp) Convert between miles and kilometres		

Progression of skills

Shape

	Properties of shapes	Position and direction
Reception	Explore characteristics of and begin to sort 3-D and 2-D shapes Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can Select, rotate and manipulate shapes to develop spatial reasoning skills	To use mathematical language to describe position Select, rotate and manipulate shapes to develop spatial reasoning skills Continue, copy and create repeating patterns
Year 1	Recognise and name common 2-D and 3-D shapes Sort 2-D and 3-D shapes with increasingly accurate mathematical vocabulary.	Describing position and direction using mathematical language including left and right. Describing movement, including half, quarter and three-quarter turns. Recognise and create repeating patterns
Year 2	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes Compare and sort common 2-D and 3-D shapes and everyday objects	Continue to describe position and direction using mathematical language Describe movement using mathematical language including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) Order and arrange combinations of mathematical objects in patterns and sequences
Year 3	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines Recognise 3-D shapes in different orientations and describe them Draw 2-D shapes and make 3-D shapes using modelling materials Recognise angles as a property of shape or a description of a turn Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; Identify whether angles are greater than or less than a right angle	Make connections between quarter turns and half turns to right angles.
Year 4	Identify lines of symmetry in 2-D shapes presented in different orientations Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Complete a simple symmetric figure with respect to a specific line of symmetry Identify acute and obtuse angles and compare and order angles up to two right angles by size	Describe positions on a 2-D grid as coordinates in the first quadrant • Plot specified points and draw sides to complete a given polygon • Describe movements between positions as translations of a given unit to the left/right and up/down • Solve problems involving patterns
Year 5	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Use the properties of rectangles to deduce related facts and find missing lengths and angles Distinguish between regular and irregular polygons based on reasoning about equal sides and angles Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90°	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language Understand that the size and shape of an object does not change under translation and reflection
Year 6	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Recognise, describe and build simple 3-D shapes, including making nets Draw 2-D shapes using given dimensions and angles Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	Describe positions on the full coordinate grid (all 4 quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

Progression of knowledge

Statistics

Reception and Year 1	Use everyday routines and Maths Meeting time to begin to collect and discuss simple data e.g. recording the type of weather or pupils' birthdays.
Year 2	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data
Year 3	Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables
Year 4	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
Year 5	Complete, read and interpret information in tables, including timetables. Solve comparison, sum and difference problems using information presented in a line graph
Year 6	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average

Progression of knowledge

Algebra

Reception	Continue, copy and create repeating patterns Pupils compare numbers and objects using the language of more than', 'less than', 'fewer', 'the same as', 'equal to'.
Year 1	Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? − 9
Year 2	Order and arrange combinations of mathematical objects in patterns Show that addition & multiplication of 2 numbers can be done in any order (commutative) and subtraction & division of 1 number from another cannot Add 3 one-digit numbers, using associativity (e.g, (3+4) + 2 = (2+4) + 3 Compare and order numbers from 0 up to 100; use and = signs Pupils should partition numbers in different ways (e.g, 23 = 20 + 3 and 23 = 10 + 13) to support subtraction. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
Year 3	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction Solve problems, including missing number problems, involving multiplication and division, including using the distributive law, positive integer scaling problems and correspondence problems in which n objects are connected to m objects
Year 4	Solve problems involving patterns Estimate and use inverse operations to check answers to a calculation Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects Express perimeter algebraically as 2(a + b) where a and b are the dimensions in the same unit.
Year 5	Use and explain the equals sign to indicate equivalence, including in missing number problems (for example 13 + 24 = 12 + 25; 33 = 5 x ?). Use the properties of rectangles to deduce related facts and find missing lengths and angles Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Distributivity can be expressed as a(b + c) = ab + ac
Year 6	Generate and describe linear number sequences Express missing number problems algebraically Find pairs of numbers that satisfy an equation with 2 unknowns Enumerate possibilities of combinations of 2 variables Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts

	Find missing angles Use simple formulae and recognise when it is possible to use formulae for area and volume of shapes and translating vertices Calculate and interpret the mean as an average

Progression of knowledge

Ratio and Proportion

Reception, Year 1 and Year 2	Throughout EYFS and KS1 pupils gain confidence in using one-to-one correspondence e.g. when sharing equally into groups, “one for you, one for you” By Year 2 pupils begin to explore many-to-one correspondence when using pictograms that use a symbol to represent 2, 5 or 10 objects.
Year 3	Solve problems involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects Understanding scaling by 10 as ‘ten times as many’ • Pupils solve simple problems in contexts, deciding which of the four operations to use and why. These include measuring and scaling contexts. The comparison of measures includes simple scaling by integers (for example, a given quantity or measure is twice as long or five times as high) and this connects to multiplication.
Year 4	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions. Solve problems involving scaling by 10 and 100 Begin to understand that decimals and fractions are different ways of expressing numbers and proportions.
Year 5	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Apply understanding of scaling to multiply and divide by 10,100,and 1000 Pupils connect multiplication by a fraction to using fractions as operators (fractions of), and to division, building on work from previous years. This relates to scaling by simple fractions, including fractions > 1. Pupils should be taught throughout that percentages, decimals and fractions are different ways of expressing proportions Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.
Year 6	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. Solve problems involving similar shapes where the scale factor is known or can be found